Complete Summary

GUIDELINE TITLE

Aortic regurgitation.

BIBLIOGRAPHIC SOURCE(S)

Aortic regurgitation. Philadelphia (PA): Intracorp; 2004. Various p.

GUIDELINE STATUS

This is the current release of the guideline.

All Intracorp guidelines are reviewed annually and updated as necessary, but no less frequently than every 2 years. This guideline is effective from January 1, 2004 to January 1, 2006.

COMPLETE SUMMARY CONTENT

SCOPE

DISEASE/CONDITION(S)

- Acute aortic regurgitation
- Chronic aortic regurgitation

GUIDELINE CATEGORY

Diagnosis
Evaluation
Management
Treatment

CLINICAL SPECIALTY

Cardiology
Emergency Medicine
Family Practice
Internal Medicine
Thoracic Surgery

INTENDED USERS

Allied Health Personnel
Health Care Providers
Health Plans
Hospitals
Managed Care Organizations
Utilization Management

GUIDELINE OBJECTIVE(S)

To present recommendations for the diagnosis, treatment, and management of aortic regurgitation that will assist medical management leaders to make appropriate benefit coverage determinations

TARGET POPULATION

Individuals with acute and chronic aortic regurgitation

INTERVENTIONS AND PRACTICES CONSIDERED

Diagnosis/Evaluation

1. Physical examination and assessment of signs and symptoms
2. Diagnostic tests:
    - Chest radiograph (CXR)
    - Echocardiography (ECHO)
    - Transesophageal echocardiography (TEECG)
    - Electrocardiogram (ECG)
    - ECHO-Doppler
    - Cardiac catheterization
    - Computer tomographic imaging or magnetic resonance imaging
    - Nuclear magnetic resonance imaging

Treatment/Management

Acute Aortic Regurgitation

1. Early surgery
2. Medications
    - Antibiotics
    - Nitroprusside, dopamine, dobutamine
    - Beta-blockers (with caution)

Chronic Aortic Regurgitation

1. Prophylactic antibiotics
2. Vasodilators such as enalapril, nifedipine, hydralazine
3. Beta-blockers
4. Parenteral inotropic and vasodilator support
5. Surgery
    - Aortic valve replacement
    - Aortic valve reconstruction
    - Ross procedure
    - Replacement of the aortic root

Note: Guideline developers recommended against use of intra-aortic balloon pump

MAJOR OUTCOMES CONSIDERED

- Specificity of diagnostic tests
- Efficacy of treatment
- Adverse effects of medication
- Operative mortality

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Hand-searches of Published Literature (Primary Sources)
Hand-searches of Published Literature (Secondary Sources)
Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

Searches were performed of the following resources: reviews by independent medical technology assessment vendors (such as the Cochrane Library, HAYES); PubMed; MD Consult; the Centers for Disease Control and Prevention (CDC); the U.S. Food and Drug Administration (FDA); professional society position statements and recommended guidelines; peer reviewed medical and technology publications and journals; medical journals by specialty; National Library of Medicine; Agency for Healthcare Research and Quality; Centers for Medicare and Medicaid Services; and Federal and State Jurisdictional mandates.

NUMBER OF SOURCE DOCUMENTS

Not stated

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Weighting According to a Rating Scheme (Scheme Not Given)

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Not stated

METHODS USED TO ANALYZE THE EVIDENCE

Review

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Not stated

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus (Delphi)

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

A draft Clinical Resource Tool (CRT or guideline) is prepared by a primary researcher and presented to the Medical Technology Assessment Committee or the Intracorp Guideline Quality Committee, dependent upon guideline product type.

The Medical Technology Assessment Committee is the governing body for the assessment of emerging and evolving technology. This Committee is comprised of a Medical Technology Assessment Medical Director, the Benefit and Coverage Medical Director, CIGNA Pharmacy, physicians from across the enterprise, the Clinical Resource Unit staff, Legal Department, Operations, and Quality. The Intracorp Guideline Quality Committee is similarly staffed by Senior and Associate Disability Medical Directors.

Revisions are suggested and considered. A vote is taken for acceptance or denial of the CRT.

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Not applicable

COST ANALYSIS

The guideline developers reviewed published cost analyses.

METHOD OF GUIDELINE VALIDATION

Comparison with Guidelines from Other Groups
Internal Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

Not stated

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

Diagnostic Confirmation

Subjective Findings

- Acute symptoms (sudden onset)
    - Weakness
    - Profound dyspnea
    - Hypotension
    - Cyanosis
- Chronic symptoms
    - Fatigue
    - Symptoms of congestive heart failure
        - Shortness of breath
        - Dyspnea on exertion
        - Orthopnea
        - Paroxysmal nocturnal dyspnea
    - Angina - often nocturnal; angina associated with diaphoresis
    - Palpitations
    - Syncope – rare

Objective Findings

- Usually a soft aortic diastolic murmur auscultated along the left sternal border; however often unheard due to lack of intensity and short duration
- Reduced intensity of first heart sound
- Tachycardia - compensatory mechanism to maintain cardiac output
- Pulmonary edema
- Cardiogenic shock
- Usually asymptomatic until middle age, then presenting as left-sided failure or chest pain
- Widened pulse pressure with associated peripheral signs
- Enlarged hyperactive left ventricle
- Electrocardiogram (ECG) often reveals nonspecific ST/T-wave changes and sinus tachycardia; in moderate to severe aortic regurgitation (AR) left ventricular (LV) hypertrophy may be noted.
- Radiography demonstrating left ventricular dilatation

Diagnostic Tests

- Chest radiograph (CXR): generally nonspecific
    - Acute: pulmonary edema, heart size normal
    - Chronic: LV dilatation, enlarged aortic root, cardiomegaly
- Echocardiography (ECHO): to determine extent and type of AR
    - Confirm presence and severity of AR
    - Assessment for cause of AR
    - Assessment for degree of left ventricular hypertrophy

    - Reevaluation of patients with mild, moderate, or severe regurgitation with new or changing symptoms
- Transesophageal echocardiography (TEECG): indicated if aortic dissection is suspected
    - Cardiac catheterization and aortography should be done if diagnosis remains uncertain.
- Electrocardiogram (ECG): may show a variety of conduction abnormalities
- ECHO-Doppler: will provide useful diagnostic information on the size and function of the left ventricle, the severity of the AR, and indicate any other valvular or cardiac abnormalities
- Cardiac catheterization: may be needed in rare cases to make diagnosis, but usually only indicated prior to surgical intervention
- Computer tomographic imaging or magnetic resonance imaging: may be indicated if echocardiography doesn't confirm diagnosis and angiography is NOT planned
- Nuclear magnetic resonance imaging: newer expensive technique; high specificity for diagnosing dissection of the aorta

Differential Diagnosis

- Aortic stenosis (see the Intracorp guideline Aortic Stenosis)
- Mitral stenosis (MS) (see the Intracorp guideline Mitral Stenosis)
- Mitral regurgitation (MR) (see the Intracorp guideline Mitral Stenosis)
- Acute myocardial infarction (AMI) (see the Intracorp guideline Acute Myocardial Infarction)
- Pericardial tamponade (see the Intracorp guideline Pericarditis)

Treatment Options

- Acute
    - Early surgical intervention is recommended.
        - Especially in patients with AR resulting from infective endocarditis and accompanied by hypotension, pulmonary edema, or evidence of compromised cardiac output
    - In patients with mild acute AR as a result of infective endocarditis, antibiotic therapy may be all that is needed as long as the patient is hemodynamically stable.
    - Nitroprusside and inotropic agents (e.g., dopamine or dobutamine) may be helpful for temporary management of forward flow (i.e., cardiac output) until surgical intervention can take place.
    - Intra-aortic balloon counterpulsation is CONTRAINDICATED.
    - Caution to be used with beta-blockers in AR because they will block compensatory tachycardia response that occurs to sustain cardiac output
- Chronic
    - Prophylactic antibiotics
    - Afterload reduction: Use of vasodilators may retard or reverse the progression of chronic AR.
        - Enalapril: Some evidence suggests superiority of acetylecholine esterase (ACE) inhibitors such as enalapril over hydralazine
        - Nifedipine
        - Hydralazine: Has limited long-term value

        - Beta-blockers may slow the rate of progression in Marfan's syndrome
        - Consider parenteral inotropic and vasodilator support in acute episodes of chronic AR
- Note that the use of intra-aortic balloon pump is CONTRAINDICATED.
- Surgical management represents definitive treatment, and operative mortality is usually in the 3 to 5% range; onset of signs/symptoms of LV dysfunction, heart failure may indicate need for surgical intervention.
    - Aortic valve replacement: Ideal candidates are patients with pure, severe, chronic AR.
        - Bioprosthesis
        - Mechanical prosthesis
    - Aortic valve reconstruction with leaflet collapse or bicuspid valves
    - Ross procedure: Reconstruction with a pulmonary autograft
    - Replacement of the aortic root when there is root disease
- Predictors of poor outcome after aortic valve replacement for aortic stenosis:
    - Advanced age (>70 yrs)
    - Female gender
    - Emergent surgery
    - Coronary artery disease (CAD)
    - Previous coronary artery bypass grafting (CABG)
    - Hypertension
    - Left ventricular dysfunction (ejection fraction < 45-50%)
    - Heart failure
    - Atrial fibrillation
    - Concurrent mitral valve replacement or repair
    - Renal failure

Duration of Medical Treatment

- Medical
    - Acute
        - Generally requires immediate, often emergent, attention and intervention
    - Chronic
        - Progressive disease that may require lifetime care
        - Examine every six months when AR is severe
        - Echocardiogram every 12 to 24 months while patient is stable without symptoms

Additional provider information regarding primary care visit schedules, referral options, and specialty care are provided in the original guideline document.

The original guideline document also provides a list of red flags that may affect disability duration, and return to work goals, including

- Resolving acute episode
- Resolving chronic episode
- After valve replacement
- After hospitalization without surgery

CLINICAL ALGORITHM(S)

None provided

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of supporting evidence is not specifically stated for each recommendation.

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

Appropriate diagnosis, treatment, and management of aortic regurgitation that assist medical management leaders in making appropriate benefit coverage determinations

POTENTIAL HARMS

- Caution should be used with beta-blockers in aortic regurgitation because they will block compensatory tachycardia response that occurs to sustain cardiac output.
- Operative mortality associated with surgical management is usually in the 3 to 5% range.

CONTRAINDICATIONS

CONTRAINDICATIONS

The use of intra-aortic balloon pump is contraindicated in aortic regurgitation.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Getting Better
Living with Illness

IOM DOMAIN

Effectiveness

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

Aortic regurgitation. Philadelphia (PA): Intracorp; 2004. Various p.

ADAPTATION

Not applicable: The guideline was not adapted from another source.

DATE RELEASED

1997 (revised 2004)

GUIDELINE DEVELOPER(S)

Intracorp - Public For Profit Organization

SOURCE(S) OF FUNDING

Intracorp

GUIDELINE COMMITTEE

CIGNA Clinical Resources Unit (CRU)
Intracorp Disability Clinical Advisory Team (DCAT)
Medical Technology Assessment Committee (MTAC)
Intracorp Guideline Quality Committee

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

Not stated

FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Not stated

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GUIDELINE AVAILABILITY

Electronic copies: Intracorp guidelines are available for a licensing fee via a password protected, secure Web site at www.intracorp.com.

Reprints of complete guideline content may be purchased for $35.00 per title (plus tax in TX at 8.25% and CT at 1.0%). Please send e-mail request to lbowman@mail.intracorp.com.

AVAILABILITY OF COMPANION DOCUMENTS

The following is available:

- Policies and procedures. Medical Technology Assessment Committee Review Process. Philadelphia (PA): Intracorp; 2004. 4 p.

Licensing information and pricing: Available from Intracorp, 1601 Chestnut Street, TL-09C, Philadelphia, PA 19192; e-mail: lbowman@mail.intracorp.com.

PATIENT RESOURCES

None available

NGC STATUS

This NGC summary was completed by ECRI on November 22, 2004. The information was verified by the guideline developer on December 8, 2004.

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